



## *Stress and the Liver*

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### *Foreword*

It is an established fact that stress can have a negative impact on both mind and body. A lot of negative stress can lead to mental, emotional and physical exhaustion. People with hepatitis C often comment that a period of stress usually leads to a 'flare-up' of symptoms, especially fatigue. Surprisingly, there is a wealth of information about how stress can affect liver disease. This fact sheet will cover some of the data from a review article titled "Does Stress Exacerbate Liver Disease?" by Y. Chida and colleagues, and sheds some light on the effects of stress on liver disease as well as raising some interesting questions.

*In the review article, previously known or hypothetical reasons for the effect of stress on liver disease were discussed, including:*

- 'Fear' and 'anxiety' induced by hypnotic suggestion significantly decreased hepatic (liver) blood flow (Hirose et al.)
- In people with chronic hepatitis B, a significant positive correlation between the degree of depression and alanine aminotransferase or ALT levels was established (Fukudo et al.)
- In people with chronic hepatitis C, type I personality scales (Grossarth-Maticek) have been associated with severity of liver disease even after adjusting for age, sex, education level, smoking, drinking, and duration of illness (Nagano et al.)
- Patients who had personality traits of 'submissive,' 'relatively controlled,' and 'of indifferent mood' before liver transplantation were more likely to have acute transplant rejection (Hildebrandt et al.)
- Research on healthy animal (rodent) models found that restraint and

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The information in this fact sheet is designed to help you understand and manage HCV and is not intended as medical advice. All persons with HCV should consult a medical practitioner for diagnosis and treatment of HCV.

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***HCV – Stress and the Liver***

electric foot-shock stress triggered slightly elevated ALT levels (Fernandez et al, Chida et al.)

The authors went on to describe the possible links between stress and liver disease that might influence liver injury:

- The release of glucocorticoids (cortisol in humans, corticosterone in rodents) controls the homeostasis (steady or healthy state) of each organ. In corticosterone pretreated mice, it was found that “a remarkable exacerbation of liver injury” occurred.
- During stress, natural killer cells (NKT) are expanded in the liver and, in some of these cases, contributed to liver cell death and worsening of liver disease.
- In the part of the brain that controls the liver, stress was found to impair blood flow and may lead to or trigger liver damage.
- Stress can exert a dual effect (enhancement or reduction) of the inflammatory process that takes place in the liver.
- A certain nerve (vagus) from the brain to the liver when stimulated with anti-stress therapy (hypnosis, meditation, acupuncture) may actually improve or reduce the negative effect of stress on the liver.

The authors concluded that even though all of the interactions between stress and the liver are not completely understood there appears to be a negative association between stress on liver disease progression. The authors noted that the link between liver disease and stress needs to be identified so that “physicians and other healthcare practitioners would be better able to treat liver disease by helping their patients learn coping and relaxation skills.”

This is another important piece of information for people living with hepatitis C to know in order to help keep the mind, body and liver healthy. Interestingly, the emotion that is attached to the liver in Traditional Chinese Medicine is anger. Stress, depression and anger can go hand in hand. There are many strategies that can help with dealing with stress, such as meditation, yoga, prayer and acupuncture, to name a few. Hepatitis C support groups can also help by providing a place where we can talk about the complex issues of dealing with a chronic illness such as hepatitis C. The bottom line is that learning to control stress should be a high priority for anyone living with hepatitis C.

**Stress Busters**

For people living with hepatitis C managing stress is an important component of staying healthy. Living with hepatitis C is stressful in and of itself so reducing stress should be an important goal for everyone living with hepatitis C. Below are some helpful hints to control it.

- Eat healthy and nutritious meals
- Drink plenty of liquids
- Exercise –one of the best strategies to staying healthy including controlling stress
- Learn to meditate
- Laugh as much as you can
- Work on spoiling yourself with hobbies, massage, dining at favorite restaurants
- Spending time with family and friends who have a positive outlook on life

**References**

“Does Stress Exacerbate Liver Disease?,” Yoichi Chida, Nobuyuki Sudo and Chiharu Kubo. Journal of Gastroenterology and Hepatology 20 (2006) 202-208

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***Related Publications***

- **HCV Wellness: Encouraging Words for Difficult Times**  
www.hcvadvocate.org/hepatitis/factsheets\_pdf/Encouraging\_Words.pdf
- **HCV Wellness: Meditation**  
www.hcvadvocate.org/hepatitis/factsheets\_pdf/Meditation.pdf
- **HCV Wellness: Stress Reduction**  
www.hcvadvocate.org/hepatitis/factsheets\_pdf/Stress\_Reduction.pdf

***For more information***

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| <ul style="list-style-type: none"> <li>• <b>The American Institute of Stress</b><br/>www.stress.org</li> <li>• <b>Mayo Clinic</b><br/>www.mayoclinic.com/health/stress-management/MY00435</li> <li>• <b>Medline</b><br/>www.nlm.nih.gov/medlineplus/stress.html</li> </ul> | <ul style="list-style-type: none"> <li>• <b>Self-Care for Hepatitis C: Applied Meditation for a Healthy Liver CD, by Margo Adair and Robin Roth</b><br/>www.hepCmeditations.org</li> </ul> |
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***Glossary of Terms***

**ALANINE AMINOTRANSFERASE (ALT; FORMERLY SGPT):**

An enzyme produced in the liver when the membranes of liver cells break down. ALT levels are measured to help assess the degree of liver damage.

**NATURAL KILLER (NK) CELL:**

A type of white blood cell that attacks and kills cells infected with microorganisms and tumor cells.

**INFLAMMATION:**

The body’s response to tissue injury or infection, typically characterized by redness, swelling, heat, and pain.

**VAGUS NERVE:**

A nerve that extends from the brain to the abdomen. It serves nerve fibers to and from the throat, voice box, trachea, lungs, heart, and intestinal tract.

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